इंटरनेट मानक

Disclosure to Promote the Right To Information

Whereas the Parliament of India has set out to provide a practical regime of right to information for citizens to secure access to information under the control of public authorities, in order to promote transparency and accountability in the working of every public authority, and whereas the attached publication of the Bureau of Indian Standards is of particular interest to the public, particularly disadvantaged communities and those engaged in the pursuit of education and knowledge, the attached public safety standard is made available to promote the timely dissemination of this information in an accurate manner to the public.

"जानने का अधिकार, जीने का अधिकार"
Mazdoor Kisan Shakti Sangathan
"The Right to Information, The Right to Live"

"पुराने को छोड नये के तरफ"
Jawaharlal Nehru
"Step Out From the Old to the New"

IS 12100 (1987): High density polyethylene (HDPE) woven sacks for packing flour [TXD 23: Textile Materials made from Polyolefins]

"ज्ञान से एक नये भारत का निर्माण"
Satyanarayan Gangaram Pitroda
"Invent a New India Using Knowledge"

Act Number 22 of 2005
The Indian Parliament
RIGHT TO INFORMATION

Made Available By
Public.Resource.Org

"ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है"
Bhartṛhari—Nītiśatakam
"Knowledge is such a treasure which cannot be stolen"

BLANK PAGE

BRUTUM FULMEN

IGNORANTIA JURIS NON EXCUSAT

PROTECTED BY COPYRIGHT

IS : 12100 - 1987
(Reaffirmed 1997)

Indian Standard

SPECIFICATION FOR HIGH DENSITY POLYETHYLENE (HDPE) WOVEN SACKS FOR PACKING FLOUR

(First Reprint APRIL 1999)

UDC 621.798.151 [678.742.2] : 664.641.1

© *Copyright* 1988

BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

Gr 3 *March* 1988

AMENDMENT NO. 1 FEBRUARY 1990
TO
IS : 12100 - 1987 SPECIFICATION FOR HIGH DENSITY POLYETHYLENE (HDPE) WOVEN SACKS FOR PACKING FLOUR

(*Page* 7, *clause* 5) — Substitute the following for the existing clause:

' 5. SAMPLING AND CRITERIA FOR CONFORMITY

5.1 In any consignment all the sacks of the same construction shall be grouped together to constitute a lot.

5.2 The conformity of the lot to the requirements of the standard shall be determined on the basis of the test carried out on the samples selected from it.

5.3 Unless otherwise agreed to between the buyer and the seller the number of bales to be selected depends on the size of the lot and shall be in accordance with col 1 and 2 of Table 2. Also the number of sacks to be selected from the bale samples shall be in accordance with col 4 of Table 2 for visual dimensional and mass requirements and shall be in accordance with the col 1 of Table 2 for breaking load requirements.

5.4 Number of Tests and Criteria for Conformity

5.4.1 *Visual, Dimensional and Mass Requirement* — Test for the visual, dimensional and mass requirements (2.1 to 2.5 and 3.2 and 3.3) for ascertaining the conformity of the lot shall be made on the sample sacks selected in one or two stages as the case may be (*see* Table 2).

5.4.1.1 The samples sacks selected in the first stage shall be examined for various requirements specified. Any sack failing to satisfy one or more requirements shall be termed as defective. If the number of defective in the first stage is less than or equal to the acceptance number (*A*) given in col 6 of Table 2 the lot shall be accepted. If the number of defectives is equal to or greater than the rejection number (*r*) given in col 7 of Table 2 the lot shall be rejected. If it lies between (*A*) and (*r*) for the first stage, a second sample of size given in col 3 of Table 2 shall be added if this cumulative number is less than or equal to the acceptance number for the second stage, the lot shall be accepted. If the cumulative number of defective is equal to or greater than the corresponding rejection number, the lot shall be rejected without further testing.

5.4.2 *Breaking Load Requirements* — Test for the breaking load requirement (3.1) for ascertaining the conformity of the lot shall be made on the sample sacks selected in one or two stages as the case may be (*see* Table 2).

5.4.2.1 The samples sacks selected and tested shall be as per the procedure followed in **5.4.1.1**. However, the acceptance number (*A*) shall be as given in col 10 of Table 2 and the rejection number (*r*) shall be as given in col 11 of Table 2. '

(*Page* 7, *Table* 2) — Substitute the following for the existing table:

TABLE 2 SAMPLE SIZE AND CRITERIA FOR CONFORMITY

(*Clauses* 5.3 *and* 5.4)

NO. OF BALES IN THE LOT	NO. OF BALES TO BE SAMPLED		VISUAL, DIMENSIONAL AND MASS REQUIREMENTS				STRENGTH REQUIREMENTS			
			Sample Size (sacks)	Cumulative Sample (sacks)	*A*	*r*	Sample Size (sacks)	Cumulative Sample (sacks)	*A*	*r*
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Up to 25	3	I stage	13	13	0	3	8	8	0	1
		II stage	13	26	3	4	—	—	—	—
26 to 50	5	I stage	20	20	1	4	8	8	0	1
		II stage	20	40	4	5	—	—	—	—
51 to 100	8	I stage	32	32	2	5	13	13	0	2
		II stage	32	64	6	7	13	26	1	2
101 and above	12	I stage	50	50	3	7	20	20	0	3
		II stage	50	100	8	9	20	40	3	4

(TXD 23)

Indian Standard

SPECIFICATION FOR HIGH DENSITY POLYETHYLENE (HDPE) WOVEN SACKS FOR PACKING FLOUR

Textile Materials Made from Polyolefins (Excluding Cordage)
Sectional Committee, TDC 47

Chairman	*Representing*
SHRI A. S. ATHALYE	Arvind Athalye Technology Transfer Pvt Ltd, Bombay
Members	
SHRI B. V. BENDAY	All India Plastics Manufacturers' Association, AIPMA, Bombay
HONORARY SECRETARY, AIPMA (*Alternate*)	
SHRI H. G. BAJAJ	Bajaj Plastics Limited, Nagpur
SHRI V. K. BAJAJ (*Alternate*)	
SHRI S. P. CHAKRABORTY	Ministry of Defence (DGI)
SHRI D. R. YADAV (*Alternate*)	
SHRI S. M. CHAKRAVARTY	Cement Manufacturers' Association, New Delhi
SHRI V. L. CHHEDA	All India Flat Tape Manufacturers' Association, Bombay
SHRI S. CHOWDHARY	Indian Petrochemicals Corporation Ltd, Vadodara
SHRI P. V. S. PRASAD (*Alternate*)	
SHRI I. N. DHEER	Paharpur Plastics, Sahibabad
SHRI V. BAGAI (*Alternate*)	
SHRI V. DORAIRAJ	Polyolefins Industries Limited, Bombay
SHRI J. L. BHAMBRI (*Alternate*)	
SHRI R. K. JAJODIA	Synpacks, Vadodara
SHRI K. M. JAJODIA (*Alternate*)	
SHRI A. A. JOSHI	Indian Institute of Packaging, Bombay
SHRI M. D. KOLI (*Alternate*)	
SHRI K. P. KAPADIA	Gujarat State Fertilizers Company Ltd, Fertilizernagar
SHRI R. C. KAPOOR (*Alternate*)	
DR V. PACHAIYAPAN	Fertilizer Association of India, New Delhi
DR S. NAND (*Alternate*)	
SHRI S. K. PATANKAR	Rashtriya Chemicals & Fertilizers Limited, Bombay

(*Continued on page* 2)

© *Copyright* 1988
BUREAU OF INDIAN STANDARDS
This publication is protected under the *Indian Copyright Act* (XIV of 1957) and reproduction in whole or in part by any means except with written permission of the publisher shall be deemed to be an infringement of copyright under the said Act.

(*Continued from page* 1)

Members	*Representing*
Shri Rajender Singh	Ministry of Defence (R & D)
Shri M. L. Beharani (*Alternate*)	
Shri S. Rathnam	Arkon Private Limited, Bangalore
Shri B. Krishnan (*Alternate*)	
Representative	National Council for Cement and Building Materials, Ballabhgarh
Shri B. M. Sharma	Gujarat Narmada Valley Fertilizers Company Limited, Narmadanagar
Shri M. U. Patel (*Alternate*)	
Shri N. Sreenivasan	Vijay Chemicals & Plastics Pvt Ltd, Vadodara
Shri V. Sundararaman	Southern Petrochemical Industries Corporation Ltd, Madras
Shri D. V. Thakkar	Dwarkadas Velji Talpatriwala, Bombay
Shri R. I. Midha, Director (Tex)	Director General, BIS (*Ex-officio Member*)

Secretary

Shri A. R. Banerjee
Joint Director (Tex), BIS

Indian Standard

SPECIFICATION FOR HIGH DENSITY POLYETHYLENE (HDPE) WOVEN SACKS FOR PACKING FLOUR

0. FOREWORD

0.1 This Indian Standard was adopted by the Bureau of Indian Standards on 24 July 1987, after the draft finalized by the Textile Materials Made from Polyolefins (Excluding Cordage) Sectional Committee had been approved by the Textile Division Council.

0.2 In view of extensive use of HDPE woven sacks for packing flour within the country, the Committee felt an urgent need for formulating an Indian Standard on the subject.

'AGMARK' authorities had also desired for early formulation of this standard as 'AGMARK' flour is packed in such type of bags.

0.3 It is expected that with the use of the bags conforming to this specification, the wastage of flour during various stages of handling would be prevented considerably.

0.4 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS : 2-1960*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

1. SCOPE

1.1 This standard prescribes the requirements of two types of HDPE woven sacks suitable for packing flour.

Type 1	Suitable for 25 and 50 kg
Type 2	Suitable for 5 and 10 kg

---

*Rules for rounding off numerical values (*revised*).

2. MANUFACTURE

2.1 Fabric — The fabric used in the manufacture of HDPE woven bags shall be woven from HDPE tapes (*see* IS : 6192-1984*). The minimum width of tapes used for making fabric shall be not less than 2·5 mm and the linear density of the tape shall be minimum 88·8 tex (800 denier).

2.2 Sack — The sacks may be produced from fabric woven as a tube and cut to the required length or converted from woven fabric produced on a flat bed loom. Such converted material may be laminated prior to conversion into sacks.

2.2.1 *Tubular Woven* — The sack tube is produced conveniently on a circular loom. The sack tube may also be woven on a flat bed loom which effectively weaves two layers of fabric. The weft is passed via the shuttle through each layer in turn in such a way that it forms tube in which the weft is continuous around the tube so formed. When this method is used, the weft direction tape lies in the transverse direction of the finished sack.

2.2.2 The constructions of fabric found suitable are given in Appendix A.

2.3 Lamination of the Sack — If so agreed to between the buyer and the seller, the sack shall be made out of woven fabric laminated with low density polyethylene film of uniform thickness not less than 25 micron (or mass 23 g/m^2).

2.3.1 *Liner* — Alternatively, the sack may be supplied with loose liner of plastic materials such as LDPE, LLDPE, HMHDPE, HDPE or polypropylene as required by the buyer. The liner should be at least 10 percent more in length and width of the sack dimensions. In case of LDPE liner, the mass shall not be less than 37 g/m^2 and for other plastic material, the mass shall not be less than 24 g/m^2.

2.3.2 The lamination or the loose liner shall be free from pin holes, patches, tears, blisters and any other visible defects. The plastics used for lamination or liner shall be made from virgin material.

2.4 Seam — If the sack is to be fabricated out of a flat fabric (as distinct from fabrication of a sack from a tubular woven fabric), the side and bottom of the sack shall be sewn and in case of tubular woven sack the stitching shall be only at the bottom. The stitching shall be done in two rows of chain or lock stitches. The two rows of stitches should be separated from each other by about 5 mm and the outer row of stitching should be approximately 3 mm from the outer edge of the sack. Stitching should be done with fold over seam (to a depth of about 25 mm) so that the stitches pass through a minimum of 4 layers of the fabric. The number of stitches per decimetre shall be between 10 and 20. The chain or lock stitches may be as recommended in IS : 10789-1983*.

---

*Specification for monoaxially-oriented high-density polyethylene tapes (*first revision*).

2.4.1 The material used for stitching shall be HDPE tape or any other suitable thread having a minimum breaking strength of 50 N when tested according to IS : 1670-1970†. The HDPE tape used for stitching shall have at least 20 percent higher denier than that used for making the sack. The stitching shall be uniform and without any loose thread or knot.

2.5 Mouth of the Sack — The mouth of the sack should be selvedged, hemmed or heat cut, so that the tapes do not fray. The mouth of the sack should be completely open.

2.6 Capacity — The Type 1 sack shall have nominal capacity of 25 kg or 50 kg as ordered and Type 2 sacks shall have nominal capacity of 5 kg or 10 kg as ordered.

3. REQUIREMENTS

3.1 The breaking strength of fabric and seam breaking strength of Types 1 and 2 sacks shall be as given in Table 1.

3.2 Dimensions — The outside dimensions shall be as agreed to between the buyer and the seller subject to a tolerance of $^{+3}_{-0}$ percent.

NOTE 1 — The suitable size of the bags are as under:

Capacity (kg)	*Size* (mm)
5	400 × 260
10	580 × 370
25	950 × 570
50	1 200 × 900

NOTE 2 — The dimensions should ensure free space of minimum 20 percent of length when measured along the surface of the fabric from mouth stitch line of the sack up to the surface level of the contents.

---

*Classification and terminology of stitch types used in seams.

†Method for determination of breaking load, elongation at break and tenacity of yarns (*first revision*).

TABLE 1 REQUIREMENTS OF HDPE WOVEN SACKS FOR PACKING FLOUR

(*Clause* 3.1)

Sl No.	Characteristic	Requirement		Method of Test, Ref to
		Type 1	Type 2	
(1)	(2)	(3)	(4)	(5)
i)	Breaking strength of fabric on 5 × 20 cm strip, N*, *Min*:			IS : 1969-1985† (revelled strip test method only)
	a) Widthwise	700	500	
	b) Lengthwise	600	460	
ii)	Seam breaking strength, N*, *Min*:			
	a) Side seam	390	250	IS : 9030-1979‡
	b) Bottom seam	310	200	

*1N is approximately equal to 0·102 kgf.

†Methods for determination of breaking load and elongation of woven textile fabrics (*second revision*).

‡Method for determination of seam strength of jute fabrics including their laminates.

3.3 Mass — The mass of the sack shall be as agreed to between the buyer and the seller or as declared by the manufacturer subject to the following tolerances:

		Tolerance
a)	On a bale of 500 sacks (excluding packing material)	± 3 percent
b)	On an individual sack	± 6 percent

3.3.1 The method of calculating mass of the sacks is given in Appendix A for guidance.

4. MARKING AND PACKING

4.1 The sacks shall be marked with information as required by the buyer using suitable ink.

NOTE — The common practice of marking involves the use of silk screens or stencils for printing the matter when the number of sacks ordered is small. When large number of sacks are required, the normal accepted method is flexo-printing. The inks found most suitable are those based on polyamide resins. The shade of the inks should be uniform.

4.2 Five hundred sacks or multiples thereof shall be packed to constitute a bale, which shall be formed using a layer of HDPE or PP woven fabric or any other suitable material and suitably secured.

4.2.1 Each bale may also be marked with the Standard Mark.

NOTE — The use of the Standard Mark is governed by the provisions of the Bureau of Indian Standards Act 1986 and the Rules and Regulations made thereunder. The Standard Mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard under a well-defined system of inspection, testing and quality control which is devised and supervised by BIS and operated by the producer. Standard marked products are also continuously checked by BIS for conformity to that standard as a further safeguard. Details of conditions under which a licence for the use of the Standard Mark may be granted to manufacturers or producers may be obtained from the Bureau of Indian Standards.

5. SAMPLING

5.1 In any consignment, all the sacks of the same construction shall be grouped together to constitute a lot.

5.2 The conformity of the lot to the requirements of the standard shall be determined on the basis of the tests carried out on the samples selected from it.

5.3 Unless otherwise agreed to between the buyer and the seller, the number of bales to be selected at random from a lot shall be according to col 1 and 2 of Table 2.

TABLE 2 SAMPLE SIZE AND CRITERIA FOR CONFORMITY

NUMBER OF BALES IN THE LOT	NUMBER OF BALES TO BE SELECTED	NUMBER OF SACKS TO BE SELECTED	PERMISSIBLE NUMBER OF DEFECTIVE SACKS
(1)	(2)	(3)	(4)
1	1	5	0
2	2	8	0
3 to 6	3	12	0
7 to 20	5	20	1
21 to 70	8	32	2
71 and above	13	52	3

5.4 Number of Tests — The number of sacks to be selected for testing dimensions and mass of sacks shall be according to col 3 of Table 2. Equal number of sacks shall be selected from each bale.

5.4.1 The number of sacks to be selected for testing breaking strength and seam breaking strength shall be two per bale selected according to col 2 of Table 2 subject to a maximum of 10 bags.

5.5 Criteria for Conformity

5.5.1 The lot shall be considered conforming to the requirements given in **3.2** and **3.3**, if the number of sacks not meeting the requirements for any one or more of the characteristics is less than or equal to the corresponding acceptance number given in col 4 of Table 2.

5.5.2 The lot shall be considered conforming to the requirements given in **3.1**, if all the sacks selected according to **5.4.1** meet the relevant requirement.

APPENDIX A

(*Clauses* 2.2.2 *and* 3.3.1)

PARTICULARS OF FABRICS AND CALCULATION OF MASS OF SACKS

A-1. SUITABLE FABRIC CONSTRUCTIONS

SL No.	NOMINAL COUNT TEX (or DENIER)	ENDS/cm ±5 PERCENT	PICKS/cm ±5 PERCENT	MASS, g/m^2 ±5 PERCENT
(1)	(2)	(3)	(4)	(5)
i)	For L-stitched sacks:			
	a) 88·8 (or 800)	5·5	5·5	98
		(with warp along width of sack)		
	b) 88·8 (or 800)	5	6	98
		(with warp along length of sack)		
ii)	For tubular woven sacks:			
	a) 88·8 (or 800)	5·5	5·5	98
	b) 111 (or 1 000)	4	4	88

A-2. CALCULATION OF MASS OF SACKS

A-2.1 Total mass of sack comprises : (a) mass of fabric, (b) mass of laminating material or loose liner, and (c) mass of stitching tape or thread.

A-2.1.1 Calculate the mass of sack with the help of the following as the case may be :

a) Mass of flat woven fabric, g $= (L + 25 \text{ mm}) \times 2 (W + 25 \text{ mm}) \times M_1 \times 10^{-6}$

b) Mass of tubular fabric, g $= (L + 25 \text{ mm}) \times 2 W \times M_1 \times 10^{-6}$

c) Mass of lamination, g $= (L + 25 \text{ mm}) \times 2 (W + 25 \text{ mm}) \times M_2 \times 10^{-6}$

d) Mass of loose liner, g $= L_1 \times 2 W_1 \times M_2 \times 10^{-6}$

e) Mass of stitching thread or tape, g $= L_2 \times T \times 10^{-6}$

where

L = length of sack in mm,

L_1 = length of loose liner in mm,

L_2 = approximate length of stitching tape or thread in mm,

W = width of sack in mm,

W_1 = width of loose liner in mm,

M_1 = mass of fabric in g/m^2,

M_2 = mass of lamination or loose liner in g/m^2, and

T = tex of the stitching tape or thread.

BUREAU OF INDIAN STANDARDS

Headquarters:
Manak Bhavan, 9 Bahadur Shah Zafar Marg, NEW DELHI 110002
Telephones: 323 0131, 323 3375, 323 9402 **Fax :** + 91 011 3234062, 3239399, 3239382
E - mail : bis@vsnl.com. **Internet :** http://wwwdel.vsnl.net.in/bis.org

***Central Laboratory*:**	***Telephone***
Plot No. 20/9, Site IV, Sahibabad Industrial Area, Sahibabad 201010	77 00 32
Regional Offices:	
Central : Manak Bhavan, 9 Bahadur Shah Zafar Marg, NEW DELHI 110002	323 76 17
*Eastern : 1/14 CIT Scheme VII, V.I.P. Road, Kankurgachi, CALCUTTA 700054	337 86 62
Northern : SCO 335-336, Sector 34-A, CHANDIGARH 160022	60 38 43
Southern : C.I.T. Campus, IV Cross Road, CHENNAI 600113	235 23 15
†Western : Manakalaya, E9, MIDC, Behind Marol Telephone Exchange, Andheri (East), MUMBAI 400093	832 92 95
Branch Offices:	
'Pushpak', Nurmohamed Shaikh Marg, Khanpur, AHMEDABAD 380001	550 13 48
‡Peenya Industrial Area, 1st Stage, Bangalore-Tumkur Road, BANGALORE 560058	839 49 55
Commercial-cum-Office Complex, Opp. Dushera Maidan, E-5 Arera Colony, Bittan Market, BHOPAL 462016	72 34 52
62/63, Ganga Nagar, Unit VI, BHUBANESWAR 751001	40 36 27
Kalai Kathir Building, 670 Avinashi Road, COIMBATORE 641018	21 01 41
Plot No. 43, Sector 16 A, Mathura Road, FARIDABAD 121001	28 88 01
Savitri Complex, 116 G.T. Road, GHAZIABAD 201001	71 19 96
53/5 Ward No.29, R.G. Barua Road, 5th By-lane, GUWAHATI 781003	54 11 37
5-8-56C, L.N. Gupta Marg, Nampally Station Road, HYDERABAD 500001	320 10 84
E-52, Chitranjan Marg, C- Scheme, JAIPUR 302001	37 38 79
117/418 B, Sarvodaya Nagar, KANPUR 208005	21 68 76
Seth Bhawan, 2nd Floor, Behind Leela Cinema, Naval Kishore Road, LUCKNOW 226001	21 89 23
NIT Building, Second Floor, Gokulpat Market, NAGPUR 440010	52 51 71
Patliputra Industrial Estate, PATNA 800013	26 28 08
Institution of Engineers (India) Building, 1332 Shivaji Nagar, PUNE 411005	32 36 35
'Sahajanand House' 3rd Floor, Bhaktinagar Circle, 80 Feet Road, RAJKOT 360002	36 85 86
T.C. No. 14/1421, University P. O. Palayam, THIRUVANANTHAPURAM 695034	32 21 04

---

*Sales Office is at 5 Chowringhee Approach, P.O. Princep Street, CALCUTTA 700072	27 10 85
†Sales Office is at Novelty Chambers, Grant Road, MUMBAI 400007	309 65 28
‡Sales Office is at 'F' Block, Unity Building, Narashimaraja Square, BANGALORE 560002	222 39 71

Reprography Unit, BIS, New Delhi, India